



## BIOL2M1 - Introduction

### Introduction

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#### **Introduction**

This master's degree aims to train "generalist" biologists capable of understanding the scientific foundations of the functioning of living organisms.

#### **Your future job**

Biologists apply their knowledge and know-how, which are very versatile, in very different sectors: in scientific, fundamental or applied

## BIOL2M1 - Teaching profile

### Learning outcomes

The Master in Biology (60 credits) is designed to train "generalist" biologists who can grasp the scientific foundations of how living organisms work. The knowledge they will acquire involves two different levels in the complexity of living organisms which also relate to two option courses: first, biochemistry, molecular and cellular biology, then biology of organisms and ecology. The programme is mostly made up of activities borrowed from the first year of the Master (120 credits) of the same name.

On successful completion of this programme, each student is able to :

1. Mettre en œuvre une approche intégrative des processus fondamentaux régissant le vivant depuis la structure des cellules vivantes et de leurs composants moléculaires jusqu'à leur fonctionnement au sein d'un individu ou au fonctionnement et à l'évolution des populations et des écosystèmes, en fonction de l'option choisie.

1.1 témoigner d'une maîtrise des savoirs dans les domaines développés dans l'option choisie, à savoir

- en biochimie, biologie moléculaire et cellulaire,
- ou en biologie des organismes et écologie.

1.2 décrire, expliquer, synthétiser et discuter

1.2.1 la structure et le fonctionnement des cellules vivantes et de leurs composants moléculaires ou

1.2.2 la diversité et l'évolution biologique, l'écologie des populations, des communautés et écosystèmes, l'autécologie, l'écophysiologie et l'écotoxicologie.

2. Répondre, de manière innovante, à une question inédite de biologie en utilisant des sources d'information appropriées

2.1 intégrer et articuler des concepts théoriques pour comprendre des problématiques variées.

2.2 utiliser et appliquer ces concepts afin d'analyser la valeur scientifique des sources pour donner un avis critique et raisonné.

3. Mettre en œuvre de manière autonome une démarche scientifique pour répondre à une question inédite dans un domaine, et/ou à l'interface de plusieurs domaines de la biologie

3.1 formuler une question scientifique, émettre des hypothèses, programmer et réaliser les expérimentations appropriées, analyser et interpréter les résultats, afin d'objectiver et de conclure,

3.2 mobiliser un savoir-faire technique afin de réaliser des expérimentations avec toute la rigueur scientifique.

4. Communiquer des connaissances scientifiques de base ou spécialisées en français et en anglais

4.1 maîtriser et utiliser les techniques de présentation formelle (poster, diaporama...),

4.2 structurer, rédiger et exposer des idées et concepts scientifiques à des spécialistes comme à des non-spécialistes,

4.3 argumenter et justifier des hypothèses et des données afin de les défendre devant un public de professionnels scientifiques.

5. S'instruire et agir de manière autonome dans une perspective collaborative

5.1. participer activement à une réunion d'équipe en partageant ses idées, ses expériences et ses connaissances,

5.2. écouter les autres, échanger et arriver à un consensus,

5.3. réaliser, en équipe, des recherches ou d'autres types de projets, en répartissant les tâches et les responsabilités,

5.4. préparer une présentation écrite ou orale en collaboration, en combinant les informations apportées par les membres de l'équipe.

6. Agir en scientifique conscient de lui-même et du monde et en universitaire responsable

6.1 mettre en perspective de manière critique l'impact des sciences et des techniques sur l'évolution des sociétés,

6.2 évaluer les enjeux éthiques et sociétaux des nouvelles technologies et des pratiques expérimentales en biologie,

6.3 reconnaître la fraude scientifique et le plagiat comme des comportements inacceptables en sciences.

### Programme structure

The program consists in 20 credits of core courses, an option of 22 or 24 credits and selected courses to complete the program.

## BIOL2M1 Programme



## OPTIONS

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The option in Biochemistry, Molecular and Cellular Biology is fully taught in English.

The option in Biology of Organisms and Ecology is mainly taught in French.

The student chooses an option and completes their program with elective courses.

- > [Option in Biochemistry, Molecular and Cellular Biology](#) [ en-prog-2024-biol2m1-lbiol210o ]
- > [Option in biology of organisms and ecology](#) [ en-prog-2024-biol2m1-lbiol211o ]
- > [Cours au choix](#) [ en-prog-2024-biol2m1-lbiol212o ]

## OPTION IN BIOCHEMISTRY, MOLECULAR AND CELLULAR BIOLOGY [24.0]

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- Mandatory
  - ✘ Optional
  - △ Not offered in 2024-2025
  - ⊖ Not offered in 2024-2025 but offered the following year
  - ⊕ Offered in 2024-2025 but not the following year
  - △ ⊕ Not offered in 2024-2025 or the following year
  - Activity with requisites
  - 🌐 Open to incoming exchange students
  - 🚫 Not open to incoming exchange students
  - [FR] Teaching language (FR, EN, ES, NL, DE, ...)
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|             |  |   |                                 |
|-------------|--|---|---------------------------------|
| ⌘ LBBMC2107 | Microbial cellular physiology                    | Corentin Claeys<br>Bouuaert<br>Stephan Declerck<br>Benoît Desguin<br>Pascal Hois<br>Géraldine Laloux<br>Pierre Morsomme | EN [q2] [36h+18h] [5 Credits] 🌐 |
| ⌘ LBBMC2108 | Molecular genetics and plant genomics            | Henri Batoko<br>François Chaumont<br>Xavier Draye   | EN [q2] [36h+18h] [5 Credits] 🌐 |
| ⌘ LBBMC2109 | Plant cell physiology                            | Henri Batoko<br>François Chaumont<br>Charles Hachez   | EN [q2] [36h+18h] [5 Credits] 🌐 |
| ⌘ LBBMC2110 | Animal and human molecular genetics and genomics | Françoise Gofflot<br>Nisha Limaye<br>René Rezzohazy   | EN [q2] [36h+18h] [5 Credits] 🌐 |
| ⌘ LBBMC2111 | Animal and human cellular physiology             | Frédéric Clotman<br>Patrick Dumont  | EN [q2] [36h+18h] [5 Credits] 🌐 |

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|-------------|--|--|---------------------------------|
| ○ ESBOE2123 | Freshwater Biodiversity (UNamur)                               |  | FR [q1] [12h+24h] [3 Credits] 🌐 |
| ○ ESBOE2142 | Ecology of natural and disturbed aquatic environments (UNamur) |  | FR [q1] [12h+20h] [2 Credits] 🌐 |
| ○ ESBOE2144 | Resource management in fisheries and aquaculture               |  | FR [q1] [18h+12h] [3 Credits] 🌐 |

**✂ Ecologie appliquée**

|            |                           |                                 |                                 |
|------------|---------------------------|---------------------------------|---------------------------------|
| ○ LBOE2166 | Lutte biologique          | Claude Bragard<br>Thierry Hance | FR [q2] [12h+24h] [3 Credits] 🌐 |
| ○ LBOE2185 | Evolutionary applications | Hans Van Dyck                   | EN [q2] [20h] [2 Credits] 🌐     |

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## The programme's courses and learning outcomes

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For each UCLouvain training programme, a [reference framework of learning outcomes](#) specifies the the skills expected of every graduate on completion of the programme. Course unit descriptions specify targeted learning outcomes, as well as the unit's contribution to reference framework of learning outcomes.

## BIOL2M1 - Information

### Access Requirements

*Master course admission requirements are defined by the French Community of Belgium Decree of 7 November 2013 defining the higher education landscape and the academic organisation of courses.*

*General and specific admission requirements for this programme must be satisfied at the time of enrolling at the university.*

*Unless explicitly mentioned, the bachelor's, master's and licentiate degrees listed in this table or on this page are to be understood as those issued by an institution of the French, Flemish or German-speaking Community, or by the Royal Military Academy.*

***In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail.***

#### SUMMARY

- > [General access requirements](#)
- > [Specific access requirements](#)
- > [University Bachelors](#)
- > [Non university Bachelors](#)
- > [Holders of a 2nd cycle University degree](#)
- > [Holders of a non-University 2nd cycle degree](#)
- > [Access based on validation of professional experience](#)
- > [Access based on application](#)
- > [Admission and Enrolment Procedures for general registration](#)

### Specific access requirements

In addition to the access conditions described below, candidates will have to provide proof of a sufficient command of the French language (level B1 of the CEFR, Common European Framework of Reference for Languages).

Students who wish to be admitted on the basis of a dossier (see tables below) are invited to consult the [criteria for the evaluation of application](#).

### University Bachelors

Diploma

> Find out more about [links](#) to the university

| Diploma  | Access   | Remarks    |
|--|--|------------|
| BA - technologue de laboratoire médical - crédits supplémentaires entre 45 et 60                               | Les enseignements supplémentaires éventuels peuvent être consultés dans le <a href="#">module complémentaire</a> . | Type court |
| BA en agronomie, orientation agro-industries et biotechnologies - crédits supplémentaires entre 45 et 60       |  |            |
| BA en agronomie, orientation agronomie des régions chaudes - crédits supplémentaires entre 45 et 60            |  |            |
| BA en agronomie, orientation environnement - crédits supplémentaires entre 45 et 60                            |  |            |
| BA en agronomie, orientation forêt et nature - crédits supplémentaires entre 45 et 60                          |  |            |
| BA en agronomie, orientation systèmes alimentaires durables et locaux - crédits supplémentaires entre 45 et 60 |  |            |
| BA en agronomie, orientation techniques et gestion agricoles - crédits supplémentaires entre 45 et 60          |  |            |
| BA en agronomie, orientation techniques et gestion horticoles - crédits supplémentaires entre 45 et 60         |  |            |
| BA en agronomie, orientation technologie animalière - crédits supplémentaires entre 45 et 60                   |  |            |
| BA en chimie, orientation biochimie - crédits supplémentaires entre 45 et 60                                   |  |            |
| BA en chimie, orientation biotechnologie - crédits supplémentaires entre 45 et 60                              |  |            |
| BA en chimie, orientation chimie appliquée - crédits supplémentaires entre 45 et 60                            |  |            |
| BA en chimie, orientation environnement - crédits supplémentaires entre 45 et 60                               |  |            |

## Holders of a 2nd cycle University degree

| Diploma     | Special Requirements | Access | Remarks |
|-------------|----------------------|--------|---------|
| "Licenciés" |                      | -      |         |
| Masters     |                      | -      |         |

## Holders of a non-University 2nd cycle degree

### Access based on validation of professional experience

> It is possible, under certain conditions, to use one's personal and professional experience to enter a university course without having the required qualifications. However, validation of prior experience does not automatically apply to all courses. Find out more about [Validation of priori experience](#).

### Access based on application

Access based on application : access may be granted either directly or on the condition of completing additional courses of a maximum of 60 ECTS credits, or refused.

The first step in the procedure is to submit a file online (see <https://uclouvain.be/en/study/inscriptions/futurs-etudiants.html>).

Students who wish to be admitted on the basis of a dossier are invited to consult the [criteria for the evaluation of application](#)

## Teaching method

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The teaching strategy takes its inspiration from the idea of "taking responsibility for one's own learning". In the core subjects, students have a choice between a series of activities in human sciences and may choose between many elective subjects. Learning is for the most part centred on individual work (e.g. reading, consultation of databases and bibliographic references, field and laboratory work).

## Evaluation

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**The evaluation methods comply with the [regulations concerning studies and exams](#). More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".**

Students will mainly be assessed on the basis of individual work (e.g. reading, consultation of databases and bibliographic references, writing monographs and reports, presentation of seminars, dissertation and field work). As far as possible, there will be continuous assessment, including regular 'open book examinations'. Some activities will not be given a precise mark but will be officially certified.

## Possible trainings at the end of the programme

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Holders of the Master [60] in Biology with the option in biochemistry, molecular and cellular biology may go on to the [Master \[120\] in Biochemistry and Molecular and Cell Biology](#) (120 credits) with a further year of study and a more advanced master thesis.

Holders of the Master [60] in Biology with the option in biology of organisms and ecology may go on to the degree of [Master \[120\] in Biology of Organisms and Ecology](#) (120 credits) with a further year of study and a more advanced master thesis.

## Contacts

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### Curriculum Management

Entity

Structure entity

Denomination

Faculty

Sector

Acronym

Postal address

SST/SC/BIOL

(BIOL)

Faculty of Science (SC)

Sciences and Technology (SST)

BIOL

Croix du sud 4-5 - bte L7.07.05

1348 Louvain-la-Neuve

Tel: +32 (0) 10 47 34 89 - Fax: +32 (0) 10 47 35 15

<https://uclouvain.be/fr/facultes/sc/biol>

Website

Other academic Supervisor(s)

- [Pierre Morsomme](#)

Jury

- President: [Henri Batoko](#)
- Secretary and Study advisor: [Charles Hachez](#)

Useful Contact(s)

- Administrative manager for the student's annual program: [Aloysia Stephenne](#)

